

II. REMARKS

Claims 83, 88-94, 96, 97, 117, 123-124, 152-153, 155-156, 158, 161-163, and 180-256 are currently pending in the application, of which claims 83, 117, 152, 161, 180, 200, 220, 223, 229, 233, 237, 240, and 243 are independent claims. Claims 180, 185, 189, 200, 205, 209, 220, 223, 226, 227, 229, 233, 237, 240, and 243 have been amended with this paper. New claims 248-256 have been added with this Amendment.

Applicants respectfully submit that the above amendments do not add new matter to the application and are fully supported by the specification. Support for the amendments may be found at least in Figure 7 and at page 3, lines 1-6, page 11, lines 3-5, and page 16, line 11 to page 17, line 18 of the specification.

In view of the above Amendments and following Remarks, Applicants respectfully request reconsideration and timely withdrawal of the pending objections and rejections for the reasons discussed below.

A. Allowable Subject Matter

Applicants appreciate the indication of allowable subject matter in claims 83, 88-94, 96, 97, 117, 123, 124, 152, 153, 155, 156, 158 and 161-163.

B. The Current Art Rejections

Claims 180, 181, 183-185, 187-190, 192-201, 203-205, 207-210, 212-219, 233, 234 and 237-244 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over U.S. Patent No. 6,108,369 issued to Ovesjö, *et al.* ("Ovesjö ") in view of U.S. Patent No. 5,734,647 issued to Yoshida, *et al.* ("Yoshida").

Claims 182, 186, 191, 202, 206, 211, 220-232, 235, 236 and 245-247 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Ovesjö in view of Yoshida and further

in view of U. S. Patent No. 6,009,091 issued to Stewart, *et al.* ("Stewart"). Applicants respectfully disagree for all of the reasons set forth in the previous response (which are set forth below with additional discussion) and for at least the following additional reasons.

C. The Present Amendments Further Distinguish the Applied Art

While Applicants do not agree with the propriety of the pending rejections, amendments are made with this Response in an effort to expedite consideration of the pending claims. Applicants' detailed response of June 5, 2007 explains why the previous rejections are improper. All of those arguments are hereby incorporated by reference in their entirety. Nevertheless, Applicants have amended each of the independent claims that currently stand rejected.

Specifically, claims 180, 185, 189, 200, 205, 209, 220, 223, 226, 227, 229, 233, 237, 240, and 243 have been amended to recite the term "systematically" in various instances. The term "systematically," as used in these claims, means that the desired outcome occurs in a manner that is not random or pseudo-random or that the desired feature has been chosen or selected in a manner that is not random or pseudo-random. "Systematically" is the adverbial form of the word "systematic," and "systematic" is an antonym of the term "random." See, e.g., MERRIAM-WEBSTER ONLINE THESAURUS, available at <http://www.m-w.com>, printed on August 1, 2007 (listing antonyms for random as "methodical, nonrandom, orderly, systematic") (attached as Exhibit A); ROGET'S NEW MILLENNIUM THESAURUS (1st ed. v 1.3.1), available at <http://thesaurus.com> (accessed August 1, 2007) (providing antonyms for "random" as "ordered, systematic") (attached as Exhibit B).

1. Ovesjö and Yoshida Fail to Disclose or Suggest The Recited Combinations in the Independent Claims, Particularly As Amended

Each of the rejected independent claims (claims 180, 200, 220, 223, 229, 233, 237, 240 and 243), as amended in particular, recites a specific combination of elements that neither Ovesjö nor Yoshida shows separately or in combination.

For example, Claim 180, as amended, recites a spreading method for a mobile station comprising: “***systematically*** spreading a first one of the data channels by $C_{4,1}$; ***systematically*** spreading a second one of the data channels by $C_{4,1}$; and ***systematically*** spreading a third one of the data channels by $C_{4,3}$, wherein . . . when three and not more than three of the data channels are used, the first one of the data channels, the second one of the data channels, and the third one of the data channels are used.”

Even under the Office’s logic, with which Applicants do not agree, there is no basis for the Office to assert that either Ovesjö or Yoshida discloses or suggests “***systematically*** spreading . . .” as recited. The Office Action previously acknowledged that Ovesjö fails to disclose this feature as previously recited. It asserts that modifying Ovesjö would have been obvious based on Yoshida. It concludes that ***any*** spreading code could be selected so long as it meets the alleged data rate and orthogonality, according to the “teachings” of Ovesjö. If the Office is correct, then even under its logic, there is no reason why one would ***systematically*** spread the third one of the data channels with $C_{4,3}$ while ***systematically*** spreading the first and second of the data channels with $C_{4,1}$. It therefore expressly teaches away from a systematic approach as recited in claim 180. Yoshida does not cure the deficiencies of Ovesjö in this regard: Yoshida is cited as disclosing a transmitter that spread an I and Q channel by the same spreading code.

Accordingly, for all of these reasons, the rejection of claims 180 and its dependent claims should be withdrawn.

2. Independent Claim 200, As Amended, is Patentable Over the Combination of Ovesjö and Yoshida

Claim 200 has also been amended. It now recites a spreading method for a mobile station comprising: “receiving first data on a first one of the data channels; receiving second data on a second one of the data channels; receiving third data on a third one of the data channels; *systematically* spreading the first data with $C_{4,1}$; *systematically* spreading the second data with $C_{4,1}$; and *systematically* spreading the third data with $C_{4,3}$, wherein when three and not more than three of the data channels are used, the first one of the data channels, the second one of the data channels, and the third one of the data channels are used, and $C_{I,K}$ represents an orthogonal variable spreading factor code, with I being a spreading factor and K being a code number, wherein $0 \leq K < I$.” As similarly discussed above with respect to claim 180, claim 200 recites spreading the data on the first one and the second one of the data channels with a first spreading code, here $C_{4,1}$, and spreading the data on the third one of the data channels with a second spreading code, which here is specifically identified as $C_{4,3}$, wherein when three and not more than three of the data channels are used, the first one of the data channels, the second one of the data channels, and the third one of the data channels are used. The spreading is done “systematically,” which is not suggested by either Ovesjö or Yoshida, alone or in combination, as discussed above. Accordingly, for all of these reasons, the rejection of claims 200 and its dependent claims should be withdrawn.

3. Independent Claim 220, As Amended, is Patentable Over the Combination of Ovesjö, Yoshida and Stewart

Claim 220, as amended, recites a mobile station comprising: “means for spreading *systematically* the first one of the data channels by $C_{4,1}$, the second one of the data channel by $C_{4,1}$, the third one of the data channels by $C_{4,3}$, the fourth one of the data channels by $C_{4,3}$, the fifth one of the data channels by $C_{4,2}$, the sixth one of the data channels by $C_{4,2}$,” “wherein a first one of the data channels, a second one of the data channels, and a third one of the data channels are configured to be used when three and not more than three of the data channels are configured to be used.” The spreading is done “systematically,” which is not suggested by either Ovesjö or Yoshida, alone or in combination, as similarly discussed above with respect to claim 180. Accordingly, for all of these reasons, the rejection of claims 220 and its dependent claims should be withdrawn.

4. Independent Claim 223, As Amended, is Patentable Over the Combination of Ovesjö, Yoshida and Stewart

Claim 223, as amended, recites an apparatus for a mobile communication system comprising “the first spreading unit configured to spread *systematically* a first one of the data channels by $C_{4,1}$; a second spreading unit configured to spread *systematically* a second one of the data channels by $C_{4,1}$; a third spreading unit configured to spread *systematically* a third one of the data channels by $C_{4,3}$; a fourth spreading unit configured to spread the at least one control channel by $C_{256,0}$, . . . wherein the first one of the data channels, the second one of the data channels, and the third one of the data channels are configured to be used when three and not more than three of the data channels are configured to be used.” The spreading is done “systematically,” which is not suggested by either Ovesjö or Yoshida, alone or in combination,

as similarly discussed above with respect to claim 180. Accordingly, for all of these reasons, the rejection of claims 223 and its dependent claims should be withdrawn.

5. Independent Claim 229, As Amended, is Patentable Over the Combination of Ovesjö, Yoshida and Stewart

Claim 229, as amended, recites a mobile station comprising: “an allocation unit configured to allocate *systematically* first data to a first one of the data channels, second data to a second one of the data channels, third data to a third one of the data channels, fourth data to a fourth one of the data channels, fifth data to a fifth one of the data channels, and sixth data to a sixth one of the data channels, and control data to the at least one control channel, respectively; a first multiplier configured to multiply *systematically* the first data by $C_{4,1}$; a second multiplier configured to multiply *systematically* the second data by $C_{4,1}$; a third multiplier configured to multiply *systematically* the third data by $C_{4,3}$; a fourth multiplier configured to multiply *systematically* the fourth data by $C_{4,3}$; a fifth multiplier configured to multiply the fifth data by $C_{4,2}$; a sixth multiplier configured to multiply the sixth data by $C_{4,2}$; and a seventh multiplier configured to multiply the control data by $C_{256,0}$, wherein . . . the first one of the data channels, the second one of the data channels, and the third one of the data channels are configured to be used when three and not more than three of the data channels are configured to be used . . . $C_{I,K}$ represents an orthogonal variable spreading factor code, I being a spreading factor and K being a code number, wherein $0 \leq K < I$.” The spreading is done “systematically,” which is not suggested by either Ovesjö or Yoshida, alone or in combination, as similarly discussed above with respect to claim 180. Accordingly, for at least these reasons, the rejection of claims 229 and its dependent claims should be withdrawn.

6. Independent Claim 233, As Amended, is Patentable Over the Combination of Ovesjö and Yoshida

Claim 233, as amended, recites an apparatus for a mobile communication system comprising “an allocation unit configured to allocate *systematically* at least first data to a first one of the data channels, second data to a second one of the data channels, and third data to a third one of the data channels, and a multiplying unit configured to multiply *systematically* the first data by $C_{4,1}$, the second data by $C_{4,1}$, and the third data by $C_{4,3}$, wherein the first one of the data channels, the second one of the data channels, and the third one of the data channels are configured to be used when three and not more than three of the data channels are configured to be used, and $C_{I,K}$ represents an orthogonal variable spreading factor code, I being a spreading factor and K being a code number, wherein $0 \leq K < I$. ” The spreading is done “systematically,” which is not suggested by either Ovesjö or Yoshida, alone or in combination, as similarly discussed above with respect to claim 180. Accordingly, for at least these reasons, the rejection of claims 233 and its dependent claims should be withdrawn.

7. Independent Claim 237, As Amended, is Patentable Over the Combination of Ovesjö and Yoshida

Claim 237, as amended, recites an apparatus for a mobile station comprising: “a spreading unit configured to spread *systematically* a first one of the data channels and a second one of the data channels by $C_{4,1}$ and to spread *systematically* a third one of the data channels by $C_{4,3}$, wherein the first one of the data channels, the second one of the data channels, and the third one of the data channels are configured to be spread by the one or more orthogonal variable spreading factor codes when three and not more than three of the data channels are configured to be spread by the one or more orthogonal variable spreading factor codes, and $C_{I,K}$ represents an orthogonal variable spreading factor code, I being a spreading factor and K being a code number,

wherein $0 \leq K < I$.” The spreading is done “systematically,” which is not suggested by either Ovesjö or Yoshida, alone or in combination, as similarly discussed above with respect to claim 180. Accordingly, for at least these reasons, the rejection of claims 237 and its dependent claims should be withdrawn.

8. Independent Claim 240, As Amended, is Patentable Over the Combination of Ovesjö and Yoshida

Claim 240, as amended, recites a mobile station comprising: “a first spreading unit configured to spread *systematically* at least a first one of the data channels by $C_{4,1}$ and a third one of the data channels by $C_{4,3}$; and a second spreading unit configured to spread *systematically* at least a second one of the data channels by $C_{4,1}$, wherein the first one of the data channels, the second one of the data channels, and the third one of the data channels are configured to be used when three and not more than three of the data channels are configured to be used, and $C_{I,K}$ represents an orthogonal variable spreading factor code, I being a spreading factor and K being a code number, wherein $0 \leq K < I$.” The spreading is done “systematically,” which is not suggested by either Ovesjö or Yoshida, alone or in combination, as similarly discussed above with respect to claim 180. Accordingly, for at least these reasons, the rejection of claims 240 and its dependent claims should be withdrawn.

9. Independent Claim 243, As Amended, is Patentable Over the Combination of Ovesjö and Yoshida

Claim 243, as amended, recites a method for a mobile station comprising: “*systematically* spreading a first one of the data channels by $C_{4,1}$; *systematically* spreading a second one of the data channels by $C_{4,1}$; and *systematically* spreading a third one of the data channels by $C_{4,3}$; wherein when the mobile station transmits three and not more than three of the data channels, the first one of the data channels, the second one of the data channels, and the third one of the data

channels are transmitted, and C_{IK} represents an orthogonal variable spreading factor code, with I being a spreading factor and K being a code number, wherein $0 \leq K < I$." The spreading is done "systematically," which is not suggested by either Ovesjö or Yoshida, alone or in combination, as similarly discussed above with respect to claim 180. Accordingly, for all of these reasons, the rejection of claims 243 and its dependent claims should be withdrawn.

10. Newly Added Claims 248-256 Are Allowable Over the Applied Art

In addition to the amendments to each of the independent claims, a new dependent claim depending from each of those independent claims has been added. For example, new claim 248 recites "where the third one of the data channels is systematically spread with $C_{4,3}$ instead of $C_{4,2}$ to reduce the peak to average power ratio of the mobile station." There is no suggestion or teaching in Ovesjö or Yoshida that the spreading of the " $C_{4,3}$ instead of $C_{4,2}$ " to reduce the peak to average power ratio of the mobile station.

D. Response to Comments in the Office Action

On pages 2-3 of the Office Action, the Office sets out some responses to Applicants' previous submissions. Applicants respectfully disagree.

First, in response to Applicants' assertion that the Office Action is confusing data channels and control channels, the Office points Applicants to col. 6, lines 5-42 of Ovesjö as an example of using two different spreading codes for two different data channels. Again, however, there is no example provided in Ovesjö or Yoshida of using a $C_{4,1}$ spreading code for two *data channels* and then $C_{4,3}$ for a third *data channel*. The Office's assertion that Ovesjö describes using any of five different spreading codes for a second data channel after one code has been selected for a first data channel still does not provide the proper teaching, suggestion, motivation

or reason for using a $C_{4,1}$ spreading code for two *data channels* and then $C_{4,3}$ for a third *data channel*.

Second, in response to Applicants' assertion that the Office Action is confusing the number system used by Applicants with that used by Ovesjö, the Office states that "the majority of the claims do not claim the numbering system. Applicants disagree. Each of the rejected independent claims specifies the numbering system used when it recites that " C_{LK} represents an orthogonal variable spreading factor code, I being a spreading factor and K being a code number, wherein $0 \leq K < I$." The codes, in order, are thus $C_{4,0}$, $C_{4,1}$, $C_{4,2}$, and $C_{4,3}$ according to this recitation in each of the rejected claims.

Further, even where the claims specifically recite the numbering sequence, the Office Action appears to disregard it, such as the treatment of dependent claims such as claim 181.

It appears that the Office is taking the position that "[a]ny selections of the codes that meet these two requirements [determination based on data rates and to preserve orthogonality] are supported by the teachings of Ovesjö."

That analysis is directly contrary to the Supreme Court's holding in *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727 (2007). In *KSR*, the Supreme Court held that something that is "[m]erely . . . obvious to try" is obvious *only* when (1) there is a design need or market pressure *and* "a finite number of identified, predictable solutions" that "leads to the anticipated success." In the instant case, the Office has failed to set forth that there is a design need or market pressure and a finite number of identified, predictable solutions that "leads to the anticipated success." Neither the rejections nor the arguments presented by the Office articulate a design need or market pressure for the selection of the specific codes for the specific channels recited in the claims. Accordingly, the Office has failed to meet the requirements for "obvious to try" analysis

as set forth by the Supreme Court in *KSR*. Therefore for any of the above reasons, the Office improperly engages in an “obvious to try” analysis.


CONCLUSION

In view of the foregoing amendments and arguments, it is respectfully submitted that this application is in condition for allowance. If the Examiner believes that prosecution and allowance of the application will be expedited through an interview, whether personal or telephonic, the Examiner is invited to telephone the undersigned with any suggestions leading to the favorable disposition of the application.

It is believed that all necessary fees are being charged for filing this Response. However, the Director is hereby authorized to treat any current or future reply, requiring a petition for an extension of time for its timely submission as incorporating a petition for extension of time for the appropriate length of time. Applicants also authorize the Director to charge all required fees, fees under 37 C.F.R. §1.17, or all required extension of time fees, to the undersigned's Deposit Account No. 50-0206.

Respectfully submitted,
HUNTON & WILLIAMS LLP

Dated: October 31, 2007

By: 
Brian M. Buroker
Registration No. 39,125

Hunton & Williams LLP
Intellectual Property Department
1900 K Street, N.W.
Suite 1200
Washington, DC 20006-1109
(202) 955-1500 (telephone)
(202) 778-2201 (facsimile)